

Approaching Word Problems

1. Identify all of the given information and assign a variable. [Include units]
2. Write a verbal model.
3. Substitute all information and solve the resulting equation.
4. Check the reasonableness of your solution.
5. Answer the original question in a complete sentence.

p. 158 #49

\$45 - membership fee
 \$35 - Cost per night for members
 \$40 - Cost per night for non-members
 n - # of nights

Total Cost with membership = Total Cost without membership

$$\left(\begin{array}{c} \text{Member} \\ \text{Fee} \end{array} \right) + \left(\begin{array}{c} \text{Cost} \\ \text{Per} \\ \text{Night} \end{array} \right) \left(\begin{array}{c} \text{Number} \\ \text{of} \\ \text{Nights} \end{array} \right) = \left(\begin{array}{c} \text{Cost} \\ \text{Per} \\ \text{Night} \end{array} \right) \left(\begin{array}{c} \text{Number} \\ \text{of} \\ \text{Nights} \end{array} \right)$$

$$45 + 35n = 40n$$

$$\quad \quad \quad \underline{+(-35n)} \quad \quad \quad \underline{+(-35n)}$$

$$\frac{45}{5} = \frac{5n}{5}$$

$$n = 9 \text{ nights}$$

After 9 nights it would cost
 the same for members and non-members.

p. 158 #50 \$60 - Installation fee (Dan)
 \$42.95 - Cost per month for Dan
 \$57.95 - Cost per month for Sydney
 m - # of months until costs are equal

Total Cost with installation fee = Total Cost without installation fee

$$\left(\begin{array}{l} \text{Installation} \\ \text{Fee} \end{array} \right) + \left(\begin{array}{l} \text{Cost} \\ \text{Per} \\ \text{Month} \end{array} \right) \left(\begin{array}{l} \text{Number} \\ \text{of} \\ \text{Months} \end{array} \right) = \left(\begin{array}{l} \text{Cost} \\ \text{Per} \\ \text{Month} \end{array} \right) \left(\begin{array}{l} \text{Number} \\ \text{of} \\ \text{Months} \end{array} \right)$$

$$60 + 42.95m = 57.95m$$

$$\begin{array}{r} 60 + 42.95m \\ + (-42.95m) \end{array} = \begin{array}{r} 57.95m \\ + (-42.95m) \end{array}$$

$$\frac{60}{15} = \frac{15m}{15}$$

$$m = 4 \text{ months}$$

In 4 months the costs for Dan
 and Sydney would be the same.

Assignment #11

Part I: Problem Solving Worksheets #1&2

Part II: 3.3 Solving Multi-Step Equations